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DOI:
10.1139/cjm-2017-0458

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When I first started my undergraduate research project I was handed a stack of papers by my supervisor, Professor Anthony Clarke, which covered some of the greatest hits of bacterial cell wall physiology. Included amongst them were some of Professor Terry Beveridge's papers showing in spectacular detail the nature of the cell envelope of Gram-negative and –positive bacteria (Matias et al. 2003; Bernadsky et al. 1994; Matias & Beveridge 2005). I recall being astonished that it was possible to see these remarkable cellular compartments in such detail and was fascinated that a simple molecule like penicillin could do so much damage to them.

My graduate work focused on the modification of peptidoglycan, the stress-bearing component of the cell envelope so wonderfully depicted in Terry's work. With the support of the Clarke laboratory and the rest of the Department of Molecular and Cellular Biology at the University of Guelph we were able to untangle the molecular basis for peptidoglycan O-acetylation (Moynihan & Clarke 2014b; Moynihan & Clarke 2014a; Moynihan & Clarke 2010). This was the work which ultimately lead to me receiving one of the inaugural Terry Beveridge poster awards.

At one of the first Canadian Society for Microbiologists (CSM) meetings I attended, I recall the president of the CSM at the time commenting that it was "important that rather than being a society for microbiology, [the CSM] was a society for microbiologists". This important distinction is borne out in the society's efforts to promote and help its junior members, something I believe Terry whole-heartedly supported. Through the oral and poster competitions at the annual general meetings the society is able to showcase the incredible diversity of skill, ideas and work being conducted by young Canadian microbiologists.

Receiving the inaugural Terry Beveridge poster award was an incredibly humbling experience for me and has had a long-lasting impact on my own scientific career. As a post-doctoral researcher looking to make the transition to principle investigator, showing a track-record of scientific communication and research excellence was critical. Thanks in part to this recognition by the CSM with an oral presentation award in 2009 and the Terry Beveridge poster prize in 2013, I was recently able to make that transition. I currently hold a Future Leader Fellowship from the Biotechnology and Biological Sciences Research Council of the UK. With this fellowship, I have been able to start my own group at the University of Birmingham where we focus on *Mycobacterium tuberculosis*. It is my hope that as a young principle investigator I can model Terry's vision, mentorship and insight as my group attempts to unravel some of the complexities of mycobacterial cell wall metabolism.

References:

Bernadsky G, Beveridge TJ, Clarke AJ. 1994. Analysis of the sodium dodecyl sulfate-stable peptidoglycan autolysins of select Gram-negative pathogens by using renaturing polyacrylamide gel electrophoresis. J Bacteriol. **176**(17): 5225–5232.

Matias VRF, Beveridge TJ. 2005. Cryo-electron microscopy reveals native polymeric cell wall structure in *Bacillus subtilis* 168 and the existence of a periplasmic space. Mol Microbiol. **56**(1):240–251.

Matias VRF, Al-Amoudi A, Dubochet J, Beveridge TJ. 2003. Cryo-transmission electron microscopy of frozen-hydrated sections of *Escherichia coli* and *Pseudomonas aeruginosa*. J Bacteriol. **185**(20): 6112–6118.

Moynihan PJ, Clarke AJ. 2014. Substrate Specificity and Kinetic Characterization of Peptidoglycan O-Acetyltransferase B from Neisseria gonorrhoeae. J Biol Chem.

289(24):16748–16760.

Moynihan PJ, Clarke AJ. 2014. Mechanism of action of peptidoglycan *O*-acetyltransferase B involves a Ser-His-Asp catalytic triad. Biochemistry. **53**(39):6243–51.

Moynihan PJ, Clarke AJ. 2010. O-acetylation of peptidoglycan in Gram-negative bacteria: identification and characterization of peptidoglycan *O*-acetyltransferase in *Neisseria gonorrhoeae*. J Biol Chem. **285**(17):13264–13273.